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CENTRAL INTELLIGENCE AGENCY

## INFORMATION REPORT

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COUNTRY : Germany/USSR

DATE DISTR. 23 1005Z

SUBJECT : The History and Organization of the  
Kuibyshev Junkers Group

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PLACE  
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NO. OF ENCLS. 3  
(LISTED BELOW)DATE  
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SUPPLEMENT TO  
REPORT NO.

DATE OF INFORMATION

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THIS IS UNEVALUATED INFORMATION

1. Germany (1945-46)

- (a) After occupation of the Anhalt district of Saxony by Soviet troops, all Junkers specialists who still lived in Dessau and surroundings were ordered to the plant and interviewed concerning their work during the war. Two groups were formed under the supervision of the Soviet military officials. These were the Engine Section which was under the direction of Dr Scheibe and the Aircraft Section under Baade. At first these groups did not appeal to the specialists because the hook could clearly be recognized under the bait. After economic conditions in Germany became so poor, however, more and more cooperation was obtained from the Germans. The German leaders hoped that through collaboration with the Soviets, personal advantages could be gained, dismantling of the plant could be avoided, and working opportunities for more people would be made available.

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"Peace Section" of the Junkers engine plant. This section was working on items which were not directly of a military nature, thus the name; the employees believed this would be good insurance against their being shipped to the

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USSR. In this department, which Treiber supervised, projects for test stands for the engine group were the primary functions, but other Soviet development was also carried out. These included pressurized engine test cells and wind tunnels, and smaller items such as water brakes and various types of test stands. The assignments were, for the most part, difficult to accomplish, both with respect to performance required and technical details such as noise dampers, energy recovery, and measurement accuracies. [ ] the personnel issuing these assignments had no concept of what equipment was necessary to test a turbojet engine unit.

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[ ] Pfluegel (formerly director of the Rechlin Pressurized Engine Test Cell), Dornhoefer (formerly director of a Junkers engine branch plant), and Warnk (formerly director of the heat and power plant of the Junkers works), were also employed in the "Peace Section" as independent engineers. The other personnel, including the department chief, had only production experience.

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[ ] the engine group. There, working conditions were poorer than in the aircraft section. Of the German "specialists", only three at most had worked on the development of jet power plants. The other workers had a fair knowledge of general engineering but not in the specialized fields. The inheritance which the Soviets had received was completely worthless. For example, almost no data were found on the JUMO 012 project. Deinhardt, the director of the compressor department, told [ ] that the measurements of the 012 compressor were reproduced from scrap parts and that it was not known whether these parts, such as rotor blades and guide vanes, were from the latest developments or from earlier work. The whole enterprise bordered on technical swindle.

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- (e) Conscious of their weaknesses, the responsible directors and supervisors tried to change their activities to fields in which they were more familiar and proffered such projects to the Soviets. The Soviet management accepted these proposals, which were assigned to a group under the direction of Gerlach, but it also insisted on the development of jet power plants.
- (f) Besides the work on the JUMO 012, a new project called the JUMO 022 was started. According to Deinhardt, this was strictly a postwar development. The compressor for the JUMO 012 had been constructed and was being tested using a steam turbine as a source of power at the time the transfer to the USSR took place in October 1946.

## 2. USSR (1946-50)

- (a) Contrary to their hopes, the "Peace Section", excluding certain of the lesser skilled personnel, was also transferred to the USSR. [ ] the engine group, was shipped by train to Krasnaya-Glinka via Kuibyshev, and from there in automobiles to Upravlentschsky, arriving 6 Nov 46. In this town, most of the personnel were assigned to apartments in various sections; the remainder, for whom apartments were not available, were primitively housed in a housing area on a hill on a bank of the Volga River. Later, those families received apartments in a settlement of wooden houses (called Finnish houses). A total

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of 750 German specialists with their families lived in this town until September 1950. All of them had previously worked for Junkers/Dessau, BMW/Stassfurt, and Askania/Berlin. Although Upravleniye is some distance from Kuibyshev, my associates and I referred to the group as the "Kuibyshev Junkers Group".

- (b) The plant, officially named "State Research Plant #2", consisted of engine assembly shops, administration buildings, storehouses and auxiliary facilities arranged as sketched on Enclosure (A). According to Soviet civilians, American engineers had worked in this plant during World War II. In the shops of this plant, the dismantled equipment of the Junkers engine plant and of BMW/Stassfurt were set up. The construction departments were housed in Building #3. The Askania Group, with its workshops, was housed in a separate area. The first task was the installation of the equipment and in designing, building and putting into operation the test stand (see Enclosure (B)). Because of the very poor living conditions, the attitude and morale of the Germans reached a dangerous stage. This was reflected in their lack of interest in their work and friction amongst themselves. Life was unbearable.
- (c) In early 1947, the Soviets circulated rumors that some of the specialists were to be returned to Germany. This seemed credible to the Germans because many departments were over-staffed and also because mistakes had been made in Germany in arresting people who were of no value to the Soviets. Because of this rumor, many were hopeful and refused to work, aiming to appear superfluous and thereby to be returned home. At first this situation was tolerated by the Soviets because no proper overall control of the plant existed.
- (d) We learned that from the time of our departure from Dessau, one person in each group regularly reported to NKVD officials concerning work efficiency, political attitude and discussions in general. The Soviets began arresting people who were evidently considered by them to be unreliable.

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Other changes had taken place, and salary reductions and currency reform had brought all the unwilling workers into line. To minimize social hardships, German workers founded a social security agency and from the funds of this agency all sick people received benefits. By this organization, the minimum living costs of our group were insured. Pensions were paid to widows and survivors of deceased specialists. [redacted] did not receive any support from the Soviet Union.

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- (f) The JUMO 012 project had been dropped as had the separate developments worked on by the BMW group. The latter was discontinued because the 022 was a better engine than the BMW, whose designation was unknown to me. All personnel concentrated their effort on the JUMO 022 turboprop which was to be made ready for series production in the shortest possible time. The belated technical work, complete seclusion, and the overstaffing in departments with the everpresent danger of transfer which was always connected with a salary reduction for the victim, made us ambitious and industrious co-workers, in spite of the fact that our salaries were barely enough to live on. Incredible as it seemed at first, we grew into our tasks. Factory test runs were made on the 022 unit, proving its practicability. The compressor, combustion chamber, and turbine were improved by systematic tests, and finally the State Test Run was performed, leading to Soviet approval after the second test. The development of a starter of 50 horse-power (PS) was successful and the whole power plant was ready for series production by the end of 1949.
- (g) The Soviet Director of the plant, Col Olechnowitsch, had been removed and the construction chief, Col Kusnizoff took over direction of the work. (The Soviets explained that Olechnowitsch had a new job; we thought this transferral was arranged so that he could supervise series production of some kind.) New projects were assigned, but further development of the JUMO 022 also was continued.
- 25X1 [redacted]
- 25X1 [redacted]
- 25X1 [redacted]
- 25X1 [redacted] current problems of thermodynamics, compressor calculations, and turbine and combustion chamber designs were discussed. [redacted] dealt with questions regarding power plant installations in nacelles and fuselages. From July to August 1950, in a series of lectures in these meetings, [redacted] discussed the subject "Intake Problems on Turboprop Power Plants".
- (h) In preparation for tests, [redacted] an order on 20 Aug 50 to develop an intake for the JUMO 022 unit and to reduce the necessary operations for flight tests to a minimum number, determining these through experiments on models and on the engine. [redacted] no idea in what type of aircraft the engine was to be used. The planning embraced tests in the blower test plant and also in the TSIAM and TSAGI Institutes [redacted]
- 25X1 [redacted]
- 25X1 [redacted]
- 25X1 [redacted]
- (i) On 5 Sep 50, General Luckin (Soviet Air Force) visited the plant. In the afternoon, some of the Germans received written invitations for a meeting in the clubhouse. They were informed that all assembled there would be permitted to return to Germany. This exodus began on 6 Sep 50 and on 22 Sep 50 [redacted] arrived in Germany. At the same time (15 Sep 50), the Askania Group was transferred to Moscow. The selection of returnees was done in Moscow and, according to Soviet workers, the method used was not even known to the director of the plant Col Kusnizoff.
- 25X1 [redacted]

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3. Results and Personalities

- (a) One of the results of four years of research work in the USSR was the creation of the JUMO 022. This, with five thousand horsepower, represents remarkable progress for the Soviet Air Force - even if the fuel consumption figures do not attain the standards of British and American power plants of similar output. Furthermore, in these four years a working group evolved from a mixed group of engineers, which, with the experience gained in developing the JUMO 022, and in possession of all necessary theoretical working data, is now in position to develop within a year a modern unit ready for series production and considered satisfactory when evaluated by Western standards.
- (b) The pillars of this development were not the leaders of the group who had become famous during the war, such as Dr Scheibe (JUMO) and Dr Prestel (BMW), but were a rising generation of younger engineers. The outstanding ones were Schneider (BMW), who worked in the design department on new methods, both theoretical and practical, and Deinhardt (JUMO), who skillfully conquered the obstacles in the development of the compressor. Deinhardt's agreeable, gracious manner in guiding people, together with calm and clever tactics in negotiating with Soviet superiors, made him one of the most efficient men in the entire engine group. Werner (BMW) was introduced by Prestel to control techniques and soon surpassed Prestel. Behind these engineers were ambitious and persistent department chiefs who successfully defended their positions. Among these chiefs, the following were outstanding: Dr Wotta (design), Dr Gordig (turbine), and Gerlach, who directed the combustion chamber department after the departure of Waldeann. Another group systematically mastered the basic theories by industrious detail work. The remainder worked under Brandner's direction. He brutally directed the disposition of labor and fulfilled the requirements of the Soviets in that way. All were dominated by Kusnizoff, who played one against the other, keenly observing who was right.
- (c) The value of this research group to Soviet aircraft technique could only be judged if one knew the creative efficiency of native Soviet research work. As they did in Germany, the Soviets declared that in the USSR they already had something better and did not need German development. But the great interest of the Air Ministry was not only in the development of the JUMO 022, but also in secondary developments, such as the water brakes which were made there. Drawings of the water brakes had to be made for the Navy, but the Navy had to pay for them; this curious financial arrangement by the Soviets temporarily improved the poor economic conditions of the plant.
- (d) Col Kusnizoff, before his arrival at Kuibyshev, directed a Soviet research institute. Kusnizoff was a winner of the Stalin prize and a member of the Academy. He brought with him to Zavod #2 a small staff of collaborators who, according to their specialities, were distributed to various departments. For example, Kutseharoff worked in the compressor department. The Germans tried several times to discuss the previous working of this group, but received only careful and evasive answers.

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- (e) On 20 Apr 49, during a State Test Run, the transmission of the 022 broke and the whole propeller transmission came loose. Only Deinhardt, (who told me of this conversation), and Kutscharoff were in the office when the accident became known. Kutscharoff said approximately the following: "This is the end; the same thing happened to us before." Deinhardt said: "Such a setback can happen in every development". Kutscharoff then told him the story of one of their previous efforts. After long research on a project, they had announced the State Test Run in order to get further research funds. The unit, however, was not quite ready and had to be started electrically. Doing it in this way, the power plant could not be made to operate satisfactorily. The compressor surged and the turbine output was not sufficient to operate the compressor independently. The State Committee consequently rendered such a condemning judgment that all workers were fired and had to perform minor work for one year, until Kusnizoff was assigned to the management of Zavod #2 and recalled several of them.
- 25X1 So it was even more surprising that the technical experts of the State Test Run Committee acknowledged the opinion of the German materials examination and had the State Test Run repeated.
- (f) Soviet workers had no responsible positions before September 1950 at Zavod #2 nor were they permitted to work independently either on test stands or in fabrication. [redacted] It is improbable that the research group there can exist without the German engineers. If all Germans were repatriated by the end of 1951, as the Soviets had declared, [redacted] that other research agencies must exist elsewhere in the USSR, although [redacted] no information or knowledge of the possible existence of them.

##### 5. Organization of the Junkers Group at Kuibyshev

- (a) Enclosure (C) shows the organization of the Germans and the leading personalities of each department. This structure was finally developed by trial and error. Oleschnowitsch was the first Soviet director of the plant, but was later replaced by Kusnizoff; this change had little effect on the plant's operation.
- 25X1 The Soviet management had contact with the Soviet Air Ministry and there was also a permanent plant representative from that body. In addition, there were Communist Party and Labor Union offices at Zavod #2; each of these were actively connected with the operations of the plant.
- (b) Soviet Personalities
- (1) Oleschnowitsch:

In Dessau he had been chief of the Soviet Office; he was employed as Technical Director at Zavod #2. An energetic man in his early fifties, on the "brutal" side and a good technical mind but lacked imagination.

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(2) Kusnizoff

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Was Chief Technical Designer under Oleschnowitsch and then succeeded him as Director of the plant. He was a heavily built person in his middle thirties, although he looked ten years older. Kusnizoff was temperamental and irritable. He tried to keep in direct contact with the activities of all departments and with the individual specialists.  his main interests lay more in playing one German against the other than in directing the development program. His technical ideas were often confused.

(3) Major Kwasoff and Captain Semjonoff

These men were also on the Management Staff. They had little to do with the technical work.

(c) German Personalities

(1) Dr Scheibe (Research Manager)

After the departure of the US troops from Dessau, he took control of the engine works. He dabbled in many things in the USSR but was taken seriously by neither the Germans nor the Soviets. His ideas were somewhat childish and naive.

(2) Dr Vogts (Design)

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He did some work on turbojet power plants during World War II. After the war he became technical adviser to Dr Scheibe. A very self-confident person but his abilities are not above average.

(3) Brandner (Construction)

He was director of the main engine plant department at Dessau during World War II and led development work on the JUMO 012. He was jailed in Germany by the Soviets for political reasons, but then went to Zavod #2. He is an energetic man, has good practical ability, but only mediocre theoretical knowledge. Brandner's relations with Kusnizoff developed quickly into friendly cooperation.

(4) Dr Scheinhorst (Stress and Vibration)

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At Zavod #2, Scheinhorst was responsible for all stress problems. Formerly of BMW/Stuttgart.

(5) Dr Schmitt (Stress and Vibration)

A Junkers/Dessau engine man. He also worked on stress and vibration problems.

(6) Dr Schulze (Thermodynamics)

Formerly a teacher at the Technische Hochschule, Dresden. Dr Schulze was a physicist, not an engineer.

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## (7) Kuemmel (Thermodynamics)

Kuemmel had been with BMW/Stassfurt, studied at the Technische Hochschule Aachen, and at one time, worked as an assistant to von Karman.

## (8) Prestel (Testing)

He had headed the research group at BMW. Prestel was primarily interested in and engaged with propeller control problems.

## (9) Dr Schroeder (Calculations)

Headed the school system at Junkers/Dessau; after World War II he joined the compressor section. He had a solid fundamental background and soon became well versed in axial flow compressor theory.

## (10) Dr Christian

Dr Christian, a German engineer, arrived at Zaved #2 about the middle of July 1950. He brought with him his son and a group of approximately 9-10 Germans. Supposedly, this group had come from a PW or detention camp on the Black Sea. At first these people refused to work at Zaved #2 stating that they, as PWs, were under the jurisdiction of the Interior Ministry and not the Air Ministry. The Germans at Zaved #2 had the idea that the main reason for this refusal was that Dr Christian felt that his salary was too low and in this way was trying to obtain an increase in pay. The members of his group were distributed among the various departments and Dr Christian was assigned to the combustion chamber section.

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- (d) [ ] several other engineers working under Brandner's direction as being fairly outstanding. These were Deinhardt, Dr Gorden (propellers and turbines), who had a good technical background, Waldmann, who directed the combustion chamber group until the arrival of Gerlach's group, and Dr Schroeder, who was an axial compressor specialist. (One reason that Gerlach supplanted Waldmann was that Gerlach's leadership qualities were superior to those of Waldmann.)

- (e) Very little travelling was done by the Germans in the USSR. The group which supposedly had gone to Moscow to work on diesel engines was transferred to Kuibyshev in the last half of 1949 and absorbed into the Junkers Group. One German, an Engineer Kervin, made at least two trips to Podberejsje, to act as an advisor on JN 287 flight tests.

[ ] but believe Kervin was well qualified on the JUMO 007 engine, having worked on its development during World War II. At Zaved #2 he was in the Power Plant

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Testing Department. I have heard of some of the Askania Group who had traveled, but did not have details concerning their activities. Their names are as follows:

Moeller : Worked on control problems. "Spiritual leader" of Askania personnel.  
 Dr Pfeiffer: Chief of the Group  
 Ornamuender: Associate of Pfeiffer  
 Mueller : Oscillograph Specialist

5. Notes concerning fabrication possibilities of Zavod #2

- (a) Enclosure (A) is a sketch of the general layout of Zavod #2. This is not drawn to scale. [ ] In addition to these installations shown, there was a social club building next to the plant's entrance. To the west of the social club was an area in which equipment brought from Germany was stored, packed in the original shipping crates; one item included in this packed equipment was the pressurized engine test cell from Junkers/Dessau. The whole plant area was surrounded by a wooden fence 2.5 to 4 meters high. Watchtowers were spaced along the fence and manned day and night; these watchtowers are the "Landmarks of Russia".
- (b) The U-shaped building (Point No 4) to the south of the main shop housed the general administration offices on the upper floor and various other activities (barber shops, etc) on the lower. To the east were located the compressor building (Point No 5), carpentry and forge shops which contained annealing and hardening furnaces, two pneumatic hammers, and several "friction" presses of which only one was in operation.
- (c) All machinery had been brought from Junkers/Dessau and BMW/Stassfurt. [ ] Because of tool limitations, parts had to be designed as simply as possible from a fabrication standpoint.
- (d) [ ] the process followed in machining a compressor rotor blade being as follows: The blanks are die-forged, milled on copy machines and finished by hand. The copy milling machine was made from an old lathe with the pattern running on one spindle and the blank on another. A feeler on the master blade determined the cut on the blank. Longitudinal movement of the miller was automatic. The milled blade was very rough and was finished by hand filing. A large percentage of blades were rejected. For each rejected blade the German responsible had 150 rubles deducted from his wages. This amounted to about 50 working hours' salary. Steel stator blades were made in the same manner.
- (e) A special cutting tool was devised for forming the blade root slots in the turbine guide vane rings. This consisted of bronze electrodes having the same shape and size as the blade roots. These electrodes burned through the rings in an oil bath. The bronze wore out very quickly and each electrode was good for only about five operations. They were milled from bar stock and finished by hand.

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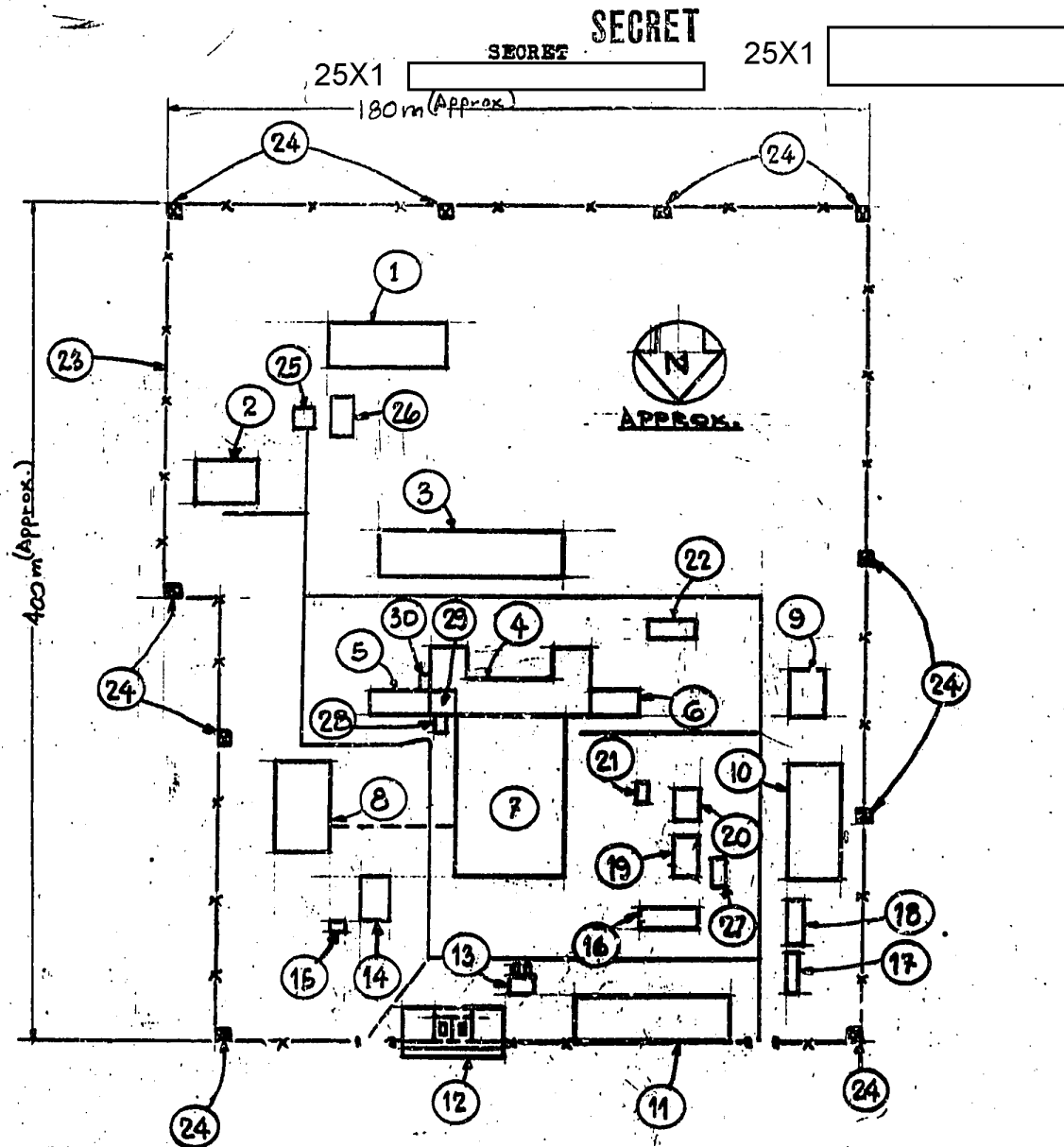
- (f) The limited facilities made the plant primarily a large machine shop. It had no large scale production possibilities with the equipment installed at the time of my departure. In fact, the fabrication possibilities were so limited that the same blading was used in several stages of the compressor to cut down the complications of production.

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- ENCLOSURES: (A) Zaved #2  
Page 1 - Layout  
Page 2 - Legend  
(B) Engine Test Stand  
(C) Organization Chart

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ZAVOD #2

Level 1

ENCLOSURE (A)

Page 1

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LEGEND

POINT 1: NEW TEST STAND BUILDING Started in 1946; still not operating in 1950.  
POINT 2: TEMPORARY TEST STAND Built in 1946  
POINT 3: DESIGN OFFICE  
POINT 4: ADMINISTRATION BUILDING, WORK PLANNING, PLANT MANAGER  
POINT 5: CARPENTRY SHOP  
POINT 6: TEST STANDS FOR EQUIPMENT (pumps, etc) AND COMBUSTION CHAMBERS  
POINT 7: MAIN ASSEMBLY SHOP  
POINT 8: SHEET METAL WORKSHOP  
POINT 9: HEATING PLANT  
POINT 10: ASKANIA SECTION  
POINT 11: METALLURGY BUILDING  
POINT 12: ENTRANCE AND GUARD HOUSE  
POINT 13: COMPRESSOR TEST STAND  
POINT 14: STOREHOUSE  
POINT 15: PRISON  
POINT 16: STOREHOUSE  
POINT 17: STOREHOUSE  
POINT 18: STOREHOUSE  
POINT 19: AMBULANCE GARAGE  
POINT 20: UNKNOWN  
POINT 21: ELECTRO-MOTOR REPAIR SHOP  
POINT 22: REPAIR SHOP BUILDING  
POINT 23: FENCE  
POINT 24: WATCHTOWERS  
POINT 25: GASOLINE STORAGE TANK  
POINT 26: SMALL REPAIR SHOP - CHECKING OF MEASURING INSTRUMENTS  
POINT 27: FIRE STATION - ONE VEHICLE  
POINT 28: AIR COMPRESSOR  
POINT 29: ANNEALING BUILDING  
POINT 30: FORGE

ENCLOSURE (A)

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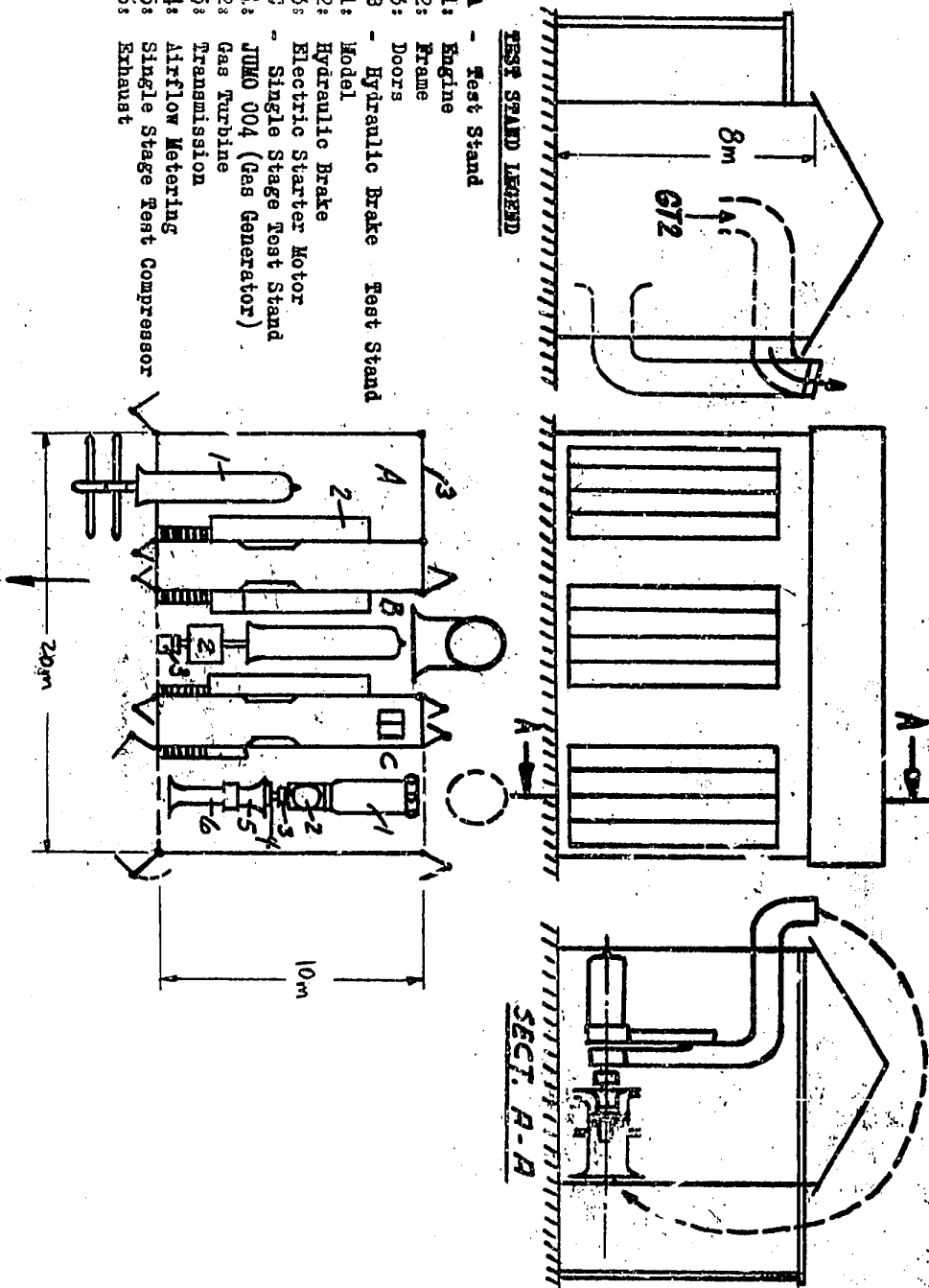
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- Section A - Test Stand
- Point 1: Engine
  - Point 2: Frame
  - Point 3: Doors
- Section B - Hydraulic Brake Test Stand
- Point 1: Model
  - Point 2: Hydraulic Brake
  - Point 3: Electric Starter Motor
- Section C - Single Stage Test Stand
- Point 1: JUMO 004 (Gas Generator)
  - Point 2: Gas Turbine
  - Point 3: Transmission
  - Point 4: Airflow Metering
  - Point 5: Single Stage Test Compressor
  - Point 6: Exhaust



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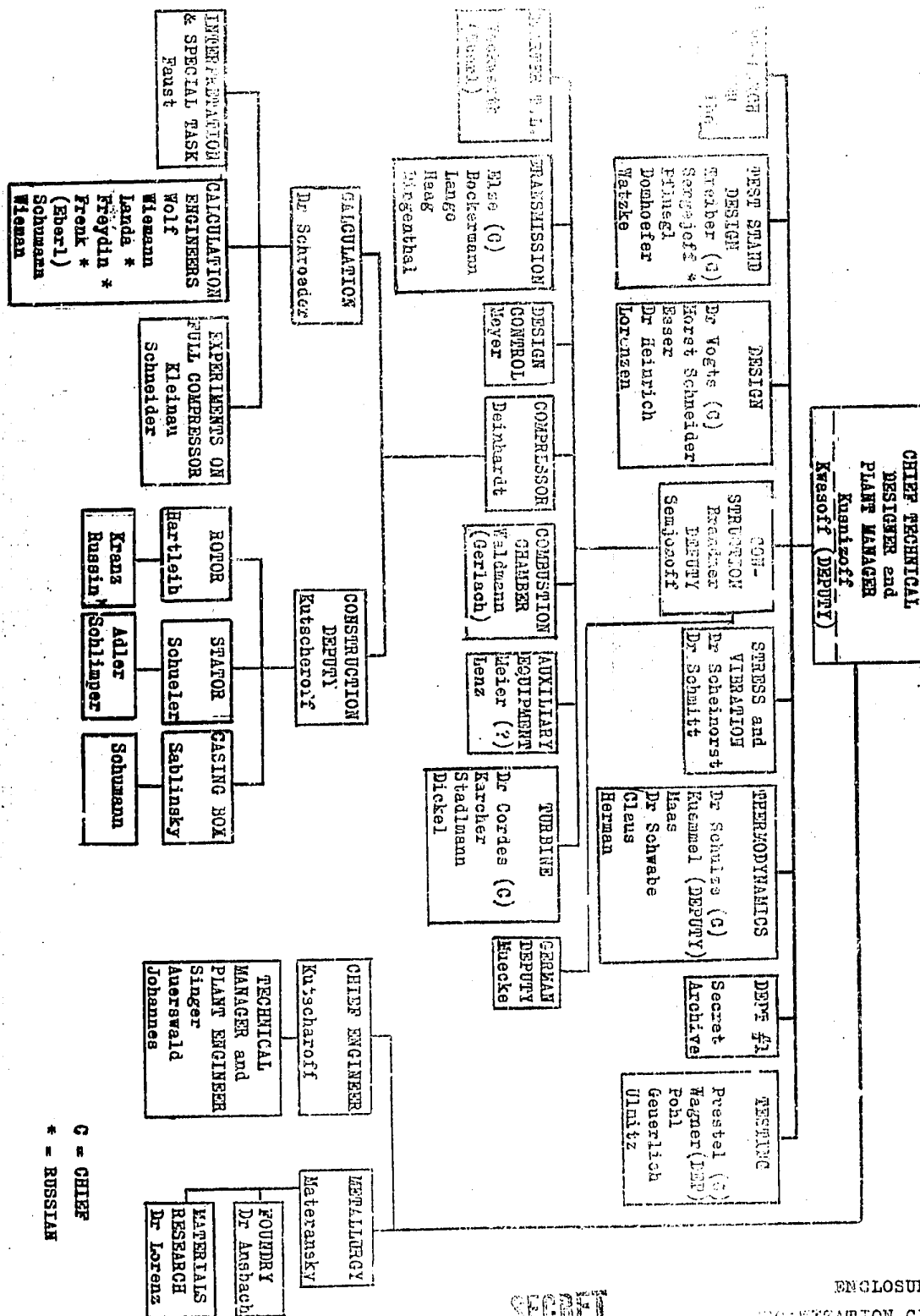
ENCLOSURE (B)

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G - CHIEF  
\* - RUSSIAN

ENCLOSURE (C)

ORGANIZATION CHART

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